

**ABSTRACT**

Apparatuses and methods are described for parallel oligonucleotide synthesis of hundreds of different sequences and lengths at a time. Standard phosphoramidite chemistry is employed. The syntheses take place in a reaction plate compatible with the industrial standard microplate format to allow the use of readily available automated instruments for subsequent processing. Key parameters in reducing synthesis volume in small reaction wells are discussed. This invention provides solutions to the difficulties of low volume, high number synthetic reactions.

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